Table 1. Areal distribution of habitat features at the Arkema Site.

				Riparian Vegetated		ACM Slope <5:1		ACM Slope>5:1		Structures		Pilings	
SCA	**SCMA**	**Habitat Feature**	**Total Acres**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**
SCA-1	Saltpad area	active channel margin	0.80			0.42	52.6%	0.38	47.4%	0.02	2.9%		
SCA-1	Saltpad area	main channel deep	0.94										
SCA-1	Saltpad area	main channel shallow 0-10 ft below OLW	0.51							0.02	3.0%		
SCA-1	Saltpad area	main channel shallow 10-20 below OLW	0.46							0.07	16.0%		
SCA-1	Saltpad area	upland riparian	6.16	0.76	12.4%								
		Total	8.86	0.76	12.4%	0.42	52.6%	0.38	47.4%	0.11	21.9%	0.00	0.0%
SCA-2	Dock 1 and 2 area	active channel margin	1.51			0.96	64.0%	0.53	35.5%	0.12	8.2%		
SCA-2	Dock 1 and 2 area	main channel deep	1.52										
SCA-2	Dock 1 and 2 area	main channel shallow 0-10 ft below OLW	1.48							0.21	14.1%		
SCA-2	Dock 1 and 2 area	main channel shallow 10-20 below OLW	0.67							0.31	46.3%		
SCA-2	Dock 1 and 2 area	upland riparian	8.41	0.94	11.2%								
		Total	13.58	0.94	11.2%	0.96	64.0%	0.53	35.5%	0.64	68.6%	0.00	0.0%
SCA-3	Lot 3 area	active channel margin	1.83			1.63	89.2%	0.20	10.8%				
SCA-3	Lot 3 area	main channel deep	0.94										
SCA-3	Lot 3 area	main channel shallow 0-10 ft below OLW	1.50							0.04	2.6%	0.02	1.5%
SCA-3	Lot 3 area	main channel shallow 10-20 below OLW	0.88							0.05	5.3%		
SCA-3	Lot 3 area	upland riparian	5.23	0.55	10.5%								
		Total	10.38	0.55	10.5%	1.63	89.2%	0.20	10.8%	0.09	7.9%	0.02	1.5%
SCA-4	Lot 1 and 2 area	active channel margin	4.63			4.33	93.5%	0.29	6.3%			0.39	8.4%
SCA-4	Lot 1 and 2 area	main channel deep	2.70										
SCA-4	Lot 1 and 2 area	main channel shallow 0-10 ft below OLW	2.03									0.26	12.7%
SCA-4	Lot 1 and 2 area	main channel shallow 10-20 below OLW	1.48										
SCA-4	Lot 1 and 2 area	upland riparian	8.68	1.13	13.1%								
		Total	19.53	1.13	13.1%	4.33	93.5%	0.29	6.3%	0.00	0.0%	0.64	21.0%

Table 2. Tentatively identified plants, Arkema salmonid habtitat survey July 6, 2010.

Plant Species	Native/Invasive Status[a]
Bigleaf maple (*Acer macrophyllum*)	N
Black cottonwood (*Populus balsamifera*)	N
Common St. Johns Wort (*Hypericum anagalloides*)	I
Common vetch (*Vicia sativa*)	I
English daisy (*Bellis perennis*)	I
English ivy (*Hedera helix*)	I
Himalayan blackberry (*Rubus discolor*)	I
Paper birch (*Bitula papyrifera*)	N
Scotch broom (*Cytisus scoparius*)	I
Sitka willow (*Salix sitchensis*)	N
Spring gold (*Lomatium utriculatum*)	N
small unidentified shrubs	-
Unidentified ferns	-
Unidentified grasses	N[b]

[a]N = Native, I = Invasive

[b]Assumes mixture of native and introduced varieties.

Table 3. Relative abundances of native and invasive plants in the riparian habitat.

	Relative Abundance		
Area	**Native Only**	**Invasive Only**	**Mixed Invasive & Native**
Saltpad	0.0%	23.5%	76.5%
Docks 1&2	0.0%	35.3%	64.7%
Lot 3	0.0%	35.7%	64.3%
Lots 1&2	5.0%	20.0%	75.0%
All Areas	1.5%	27.9%	70.6%

Table 4. Salmonid habitat evaluation for the Salt Pad area.

				Saltpad Baseline			Alternative A			Alternative B			Alternative C		
Habitat	Habitat Characteristics[1]		Salmonid Value	% Available Area	Acres	Value X Acres	% Available Area	Acres	Value X Acres	% Available Area	Acres	Value X Acres	% Available Area	Acres	Value X Acres
Riparian	6.16 Available Acres (Figure 1)														
	Value metrics														
	Naturally vegetated forest, <400 ft from ACM	[2]	0.5	[3] 0%	0.00	0.00									
	and in the historic floodplain		0.65	[3] 0%	0.00	0.00									
	Invasive species present	[4]	N/A												
	Naturally vegetated, grass/shrub		0.2	[3] 0%	0.00	0.00									
	and associated with historic floodplain		0.35	[3] 0%	0.00	0.00									
	Invasive species present	[4]	N/A												
	Vegetated riprap	[5]	0.05	12.0%	0.74	0.04									
	Unvegetated/paved/buildings/riprap		0	88.0%	5.42	0.00									
			Total		6.16	0.04									
Active channel margin	0.80 Available Acres (Figure ES1)														
	Value metrics														
	Sloped (<5:1 or 11°), unarmored and vegetated		1	[3] 0%	0.00	0.00									
	Invasive species present														
	Sloped (>5:1 or 11°), unarmored and vegetated		0.8	[3] 0%	0.00	0.00									
	Invasive species present														
	Sloped (<5:1), unarmored and unvegetated		0.8	0%	0.00	0.00									
	Sloped (>5:1), unarmored and unvegetated		0.1	0%	0.00	0.00									
	Sloped (<5:1), bio-engineered		0.2	0%	0.00	0.00									
	Sloped (>5:1), bio-engineered		0.2	0%	0.00	0.00									
	Riprapped		0	97%	0.78	0.00									
	Sheetpile		0	0%	0.00	0.00									
	Pilings	[6]	0	0%	0.00	0.00									
	Covered structures over channel margins	[7]	0.1	2.9%	0.02	0.0023									
			Total		0.80	0.0023									
Main channel															
Shallow Water (0-10 ft below OLW)															
	0.51 Available Acres (Figure ES1)														
	Value metrics														
	Shallow water, gravel and finer substrate		1	97%	0.49	0.49									
	Shallow water, natural rock outcrop	[8]	1	0%	0.00	0.00									
	Shallow water with riprap or concrete		0.1	0%	0.00	0.00									
	Shallow water with covering structures	[7]	0.1	3.0%	0.02	0.00									
	Shallow water with pilings	[6]	0	0%	0.00	0.00									
			Total		0.51	0.49									

Table 4. Salmonid habitat evaluation for the Salt Pad area.

				Saltpad Baseline			Alternative A			Alternative B			Alternative C		
Habitat	Habitat Characteristics[1]		Salmonid Value	% Available Area	Acres	Value X Acres	% Available Area	Acres	Value X Acres	% Available Area	Acres	Value X Acres	% Available Area	Acres	Value X Acres
Shallow Water (10-20 ft below OLW)															
	0.46 Available Acres (Figure ES1)			NA		NA									
	Value metrics														
	Shallow water, gravel and finer substrate		0.9	84%	0.38	0.34									
	Shallow water, natural rock outcrop	[8]	0.9	0%	0.00	0.00									
	Shallow water with riprap or concrete		0.1	0%	0.00	0.00									
	Shallow water with covering structures	[7]	0.1	16%	0.07	0.01									
	Shallow water with pilings	[6]	0	0%	0.00	0.00									
			Total		0.46	0.35									
Deep water	0.94 Available Acres (Figure ES1)														
	Value metrics														
	Deep water with natural substrates		0.1	100%	0.94	0.09									
	Deep water with artificial substrates		0.05	0%	0.00	0.00									
			Total		0.94	0.09									
Off channel	0.00 Available Acres (Figure ES1)														
	Value metrics														
	Cold" water tributary"		1	0%	0.00	0.00									
	Warm" water tributary"		0.9	0%	0.00	0.00									
	Side channel		1	0%	0.00	0.00									
	Alcove or slough with tributary	[7]	1	0%	0.00	0.00									
	Alcove or slough without tributary		0.8	0%	0.00	0.00									
	Embayment (cove) with tributary	[7]	1	0%	0.00	0.00									
	Embayment (cove) without tributary	[8]	0.8	0%	0.00	0.00									
			Total		0.00	0.00									

Source: Draft HEA Habitat Values for ESA Consultation (NMFS 2010)

[1] Estimates of relative habitat value herein are interim and subject to change pursuant to future revisions or amendments by NMFS in consultation with the LWG.

[2] ACM (active channel margin). Naturally vegetated means vegetated by native (i.e., non-invasive) species.

[3] Native species. Value is 1/2 the value listed if vegetated with invasive species.

[4] For example Himalayan blackberry

[5] Approximately 27% of the area is dominated by invasive species and 73% of the area is comprised of mixed native and invasive species.

[6] Evaluated at 1/2 the margin type depending on the location of the pilings.

[7] For example, docks

[8] Cannot be created

[9] Value is 0.9 for salmonid adults if warm" water tributary"

[10] Value is around 0.6 further upstream

Table 5. Salmonid habitat evaluation for the Dock 1 and Dock 2 area.

				Dock 1 and Dock2 Basline			Alternative A			Alternative B			Alternative C		
Habitat	Habitat Characteristics[1]		Salmonid Value	% Available Area	Acres	Value X Acres	% Available Area	Acres	Value X Acres	% Available Area	Acres	Value X Acres	% Available Area	Acres	Value X Acres
Riparian	8.41 Available Acres (Figure 1)														
	Value metrics														
	Naturally vegetated forest, <400 ft from ACM	[2]	0.5	[3] 0%	0.00	0.00									
	and in the historic floodplain		0.65	[3] 0%	0.00	0.00									
	Invasive species present	[4]	N/A												
	Naturally vegetated, grass/shrub		0.2	[3] 0%	0.00	0.00									
	and associated with historic floodplain		0.35	[3] 0%	0.00	0.00									
	Invasive species present	[4]	N/A												
	Vegetated riprap	[5]	0.05	[9] 11%	0.92	0.05									
	Unvegetated/paved/buildings/riprap		0	89%	7.48	0.00									
			Total		8.41	0.05									
Active channel margin	1.51 Available Acres (Figure ES1)														
	Value metrics														
	Sloped (<5:1 or 11°), unarmored and vegetated		1	[3] 0%	0.00	0.00									
	Invasive species present														
	Sloped (>5:1 or 11°), unarmored and vegetated		0.8	[3] 0%	0.00	0.00									
	Invasive species present														
	Sloped (<5:1), unarmored and unvegetated		0.8	19%	0.28	0.22									
	Sloped (>5:1), unarmored and unvegetated		0.1	0%	0.00	0.00									
	Sloped (<5:1), bio-engineered		0.2	0%	0.00	0.00									
	Sloped (>5:1), bio-engineered		0.2	0%	0.00	0.00									
	Riprapped		0	73%	1.10	0.00									
	Sheetpile		0	0%	0.00	0.00									
	Pilings	[6]	0	0%	0.00	0.00									
	Covered structures over channel margins	[7]	0.1	8.2%	0.12	0.01									
			Total		1.51	0.24									
Main channel															
Shallow Water (0-10 ft below OLW)															
	1.48 Available Acres (Figure ES1)														
	Value metrics														
	Shallow water, gravel and finer substrate		1	86%	1.27	1.27									
	Shallow water, natural rock outcrop	[8]	1	0%	0.00	0.00									
	Shallow water with riprap or concrete		0.1	0%	0.00	0.00									
	Shallow water with covering structures	[7]	0.1	14.1%	0.21	0.02									
	Shallow water with pilings	[6]	0	0%	0.00	0.00									
			Total		1.48	1.29									
Shallow Water (10-20 ft below OLW)															
	0.67 Available Acres (Figure ES1)			NA		NA									
	Value metrics														
	Shallow water, gravel and finer substrate		0.9	54%	0.36	0.32									
	Shallow water, natural rock outcrop	[8]	0.9	0%	0.00	0.00									

Table 5. Salmonid habitat evaluation for the Dock 1 and Dock 2 area.

		Shallow water with riprap or concrete		0.1	0%	0.00	0.00
		Shallow water with covering structures	[7]	0.1	46%	0.31	0.03
		Shallow water with pilings	[6]	0	0%	0.00	0.00
				Total		0.67	0.35
Deep water	1.52	Available Acres (Figure ES1)					
		Value metrics					
		Deep water with natural substrates		0.1	100%	1.52	0.15
		Deep water with artificial substrates		0.05	0%	0.00	0.00
				Total		1.52	0.15
Off channel	0.00	Available Acres (Figure ES1)					
		Value metrics					
		Cold" water tributary"		1	0%	0.00	0.00
		Warm" water tributary"		0.9	0%	0.00	0.00
		Side channel		1	0%	0.00	0.00
		Alcove or slough with tributary	[7]	1	0%	0.00	0.00
		Alcove or slough without tributary		0.8	0%	0.00	0.00
		Embayment (cove) with tributary	[7]	1	0%	0.00	0.00
		Embayment (cove) without tributary	[8]	0.8	0%	0.00	0.00
				Total		0.00	0.00

Source: Draft HEA Habitat Values for ESA Consultation (NMFS 2010)

[1] Estimates of relative habitat value herein are interim and subject to change pursuant to future revisions or amendments by NMFS in consultation with the LWG.

[2] ACM (active channel margin). Naturally vegetated means vegetated by native (i.e., non-invasive) species.

[3] Native species. Value is 1/2 the value listed if vegetated with invasive species.

[4] For example Himalayan blackberry

[5] Approximately 35% of the area is dominated by invasive species and 65% of the area is comprised of mixed native and invasive species.

[6] Evaluated at 1/2 the margin type depending on the location of the pilings.

[7] For example, docks

[8] Cannot be created

[9] Value is 0.9 for salmonid adults if warm" water tributary"

[10] Value is around 0.6 further upstream

Table 6. Salmonid habitat evaluation for the Lot 3 area.

				Lot 3 Baseline			Alternative A			Alternative B			Alternative C		
Habitat	Habitat Characteristics[1]		Salmonid Value	% Available Area	Acres	Value X Acres	% Available Area	Acres	Value X Acres	% Available Area	Acres	Value X Acres	% Available Area	Acres	Value X Acres
Riparian	5.23 Available Acres (Figure 1)														
	Value metrics														
	Naturally vegetated forest, <400 ft from ACM	[2]	0.5	[3] 0%	0.00	0.00									
	and in the historic floodplain		0.65	[3] 0%	0.00	0.00									
	Invasive species present	[4]	N/A												
	Naturally vegetated, grass/shrub		0.2	[3] 0%	0.00	0.00									
	and associated with historic floodplain		0.35	[3] 0%	0.00	0.00									
	Invasive species present	[4]	N/A												
	Vegetated riprap	[5]	0.05	10%	0.52	0.03									
	Unvegetated/paved/buildings/riprap		0	90%	4.70	0.00									
			Total		5.23	0.03									
Active channel margin	1.83 Available Acres (Figure ES1)														
	Value metrics														
	Sloped (<5:1 or 11°), unarmored and vegetated		1	[3] 0%	0.00	0.00									
	Invasive species present														
	Sloped (>5:1 or 11°), unarmored and vegetated		0.8	[3] 0%	0.00	0.00									
	Invasive species present														
	Sloped (<5:1), unarmored and unvegetated		0.8	63%	1.16	0.93									
	Sloped (>5:1), unarmored and unvegetated		0.1	0%	0.00	0.00									
	Sloped (<5:1), bio-engineered		0.2	0%	0.00	0.00									
	Sloped (>5:1), bio-engineered		0.2	0%	0.00	0.00									
	Riprapped		0	37%	0.67	0.00									
	Sheetpile		0	0%	0.00	0.00									
	Pilings	[6]	0	0%	0.00	0.00									
	Covered structures over channel margins	[7]	0.1	0.0%	0.00	0.0000									
			Total		1.83	0.93									
Main channel															
Shallow Water (0-10 ft below OLW)															
	1.50 Available Acres (Figure ES1)														
	Value metrics														
	Shallow water, gravel and finer substrate		1	94%	1.42	1.42									
	Shallow water, natural rock outcrop	[8]	1	0%	0.00	0.00									
	Shallow water with riprap or concrete		0.1	1.5%	0.02	0.00									
	Shallow water with covering structures	[7]	0.1	2.6%	0.04	0.00									
	Shallow water with pilings	[6]	0	1%	0.02	0.00									
			Total		1.50	1.42									
Shallow Water (10-20 ft below OLW)															
	0.88 Available Acres (Figure ES1)			NA		NA									
	Value metrics														
	Shallow water, gravel and finer substrate		0.9	94%	0.83	0.75									
	Shallow water, natural rock outcrop	[8]	0.9	0%	0.00	0.00									

Table 6. Salmonid habitat evaluation for the Lot 3 area.

		Shallow water with riprap or concrete		0.1	1%	0.00	0.00
		Shallow water with covering structures	[7]	0.1	5%	0.05	0.00
		Shallow water with pilings	[6]	0	0%	0.00	0.00
				Total		0.88	0.75
Deep water	0.94	Available Acres (Figure ES1)					
		Value metrics					
		Deep water with natural substrates		0.1	100%	0.94	0.09
		Deep water with artificial substrates		0.05	0%	0.00	0.00
				Total		0.94	0.09
Off channel	0.00	Available Acres (Figure ES1)					
		Value metrics					
		Cold" water tributary"		1	0%	0.00	0.00
		Warm" water tributary"		0.9	0%	0.00	0.00
		Side channel		1	0%	0.00	0.00
		Alcove or slough with tributary	[7]	1	0%	0.00	0.00
		Alcove or slough without tributary		0.8	0%	0.00	0.00
		Embayment (cove) with tributary	[7]	1	0%	0.00	0.00
		Embayment (cove) without tributary	[8]	0.8	0%	0.00	0.00
				Total		0.00	0.00

Source: Draft HEA Habitat Values for ESA Consultation (NMFS 2010)

[1] Estimates of relative habitat value herein are interim and subject to change pursuant to future revisions or amendments by NMFS in consultation with the LWG.

[2] ACM (active channel margin). Naturally vegetated means vegetated by native (i.e., non-invasive) species.

[3] Native species. Value is 1/2 the value listed if vegetated with invasive species.

[4] For example Himalayan blackberry

[5] Approximately 36% of the area is dominated by invasive species and 64% of the area is comprised of mixed native and invasive species.

[6] Evaluated at 1/2 the margin type depending on the location of the pilings.

[7] For example, docks

[8] Cannot be created

[9] Value is 0.9 for salmonid adults if warm" water tributary"

[10] Value is around 0.6 further upstream

Table 7. Salmonid habitat evaluation for the Lot 1 and Lot 2 area.

				Lot 1 and Lot 2 Basline			Alternative A			Alternative B			Alternative C		
Habitat	Habitat Characteristics[1]		Salmonid Value	% Available Area	Acres	Value X Acres	% Available Area	Acres	Value X Acres	% Available Area	Acres	Value X Acres	% Available Area	Acres	Value X Acres
Riparian	8.68 Available Acres (Figure 1)														
	Value metrics														
	Naturally vegetated forest, <400 ft from ACM	[2]	0.5	[3] 0%	0.00	0.00									
	and in the historic floodplain		0.65	[3] 0%	0.00	0.00									
	Invasive species present	[4]	N/A												
	Naturally vegetated, grass/shrub		0.2	[3] 5%	0.43	0.04									
	and associated with historic floodplain		0.35	[3] 0%	0.00	0.00									
	Invasive species present	[4]	Yes												
	Vegetated riprap	[5]	0.05	8.0%	0.69	0.03									
	Unvegetated/paved/buildings/riprap		0	87%	7.55	0.00									
			Total		8.68	0.08									
Active channel margin	4.63 Available Acres (Figure ES1)														
	Value metrics														
	Sloped (<5:1 or 11°), unarmored and vegetated		1	[3] 1%	0.05	0.02									
	Invasive species present		Yes												
	Sloped (>5:1 or 11°), unarmored and vegetated		0.8	[3] 5%	0.23	0.19									
	Invasive species present														
	Sloped (<5:1), unarmored and unvegetated		0.8	81%	3.74	2.99									
	Sloped (>5:1), unarmored and unvegetated		0.1	0%	0.00	0.00									
	Sloped (<5:1), bio-engineered		0.2	0%	0.00	0.00									
	Sloped (>5:1), bio-engineered		0.2	0%	0.00	0.00									
	Riprapped		0	5%	0.23	0.00									
	Sheetpile		0	0%	0.00	0.00									
	Pilings	[6]	0	8%	0.39	0.00									
	Covered structures over channel margins	[7]	0.1	0.0%	0.00	0.0000									
			Total		4.63	3.20									
Main channel															
Shallow Water (0-10 ft below OLW)															
	2.03 Available Acres (Figure ES1)														
	Value metrics														
	Shallow water, gravel and finer substrate		1	87%	1.77	1.77									
	Shallow water, natural rock outcrop	[8]	1	0%	0.00	0.00									
	Shallow water with riprap or concrete		0.1	0%	0.00	0.00									
	Shallow water with covering structures	[7]	0.1	0.0%	0.00	0.00									
	Shallow water with pilings	[6]	0	13%	0.26	0.00									
			Total		2.03	1.77									
Shallow Water (10-20 ft below OLW)															
	1.48 Available Acres (Figure ES1)			NA		NA									
	Value metrics														
	Shallow water, gravel and finer substrate		0.9	100%	1.48	1.33									
	Shallow water, natural rock outcrop	[8]	0.9	0%	0.00	0.00									

Table 7. Salmonid habitat evaluation for the Lot 1 and Lot 2 area.

		Shallow water with riprap or concrete		0.1	0%	0.00	0.00
		Shallow water with covering structures	[7]	0.1	0%	0.00	0.00
		Shallow water with pilings	[6]	0	0%	0.00	0.00
				Total		1.48	1.33
Deep water	2.70	Available Acres (Figure ES1)					
	Value metrics						
		Deep water with natural substrates		0.1	100%	2.70	0.27
		Deep water with artificial substrates		0.05	0%	0.00	0.00
				Total		2.70	0.27
Off channel	0.00	Available Acres (Figure ES1)					
	Value metrics						
		Cold" water tributary"		1	0%	0.00	0.00
		Warm" water tributary"		0.9	0%	0.00	0.00
		Side channel		1	0%	0.00	0.00
		Alcove or slough with tributary	[7]	1	0%	0.00	0.00
		Alcove or slough without tributary		0.8	0%	0.00	0.00
		Embayment (cove) with tributary	[7]	1	0%	0.00	0.00
		Embayment (cove) without tributary	[8]	0.8	0%	0.00	0.00
				Total		0.00	0.00

Source: Draft HEA Habitat Values for ESA Consultation (NMFS 2010)

[1] Estimates of relative habitat value herein are interim and subject to change pursuant to future revisions or amendments by NMFS in consultation with the LWG.

[2] ACM (active channel margin). Naturally vegetated means vegetated by native (i.e., non-invasive) species.

[3] Native species. Value is 1/2 the value listed if vegetated with invasive species.

[4] For example Himalayan blackberry

[5] Approximately 20% of the area is dominated by invasive species and 80% of the area is comprised of mixed native and invasive species.

[6] Evaluated at 1/2 the margin type depending on the location of the pilings.

[7] For example, docks

[8] Cannot be created

[9] Value is 0.9 for salmonid adults if warm" water tributary"

[10] Value is around 0.6 further upstream